DRAFT

REMARKS

Prior to this Amendment, claims 43-62, 65-78, 94 and 95 were pending in this application, with claims 68, 69, 74-76 and 95 being withdrawn from consideration. New claim 96 has been added. Claims 43-62, 65-78, and 94-96 are now pending.

The Amendments to the Claims

Claims 44-47, 49-51, 55, 57-59 and 72 have been amended to further clarify what the Applicants regard as their invention. In particular, "about" has been deleted from line 3 of claims 44-47 and line 2 of claims 50-51, 55, and 57-59. In addition, line 2 of claim 72 has been amended to replace "form" with --manikin-- for consistency with claim 43.

New claim 96 recites a manikin wherein the magnetic assembly is sized for a life-sized manikin joint, has a depth of pull of at least 200 gauss at a distance of one inch, and has an on-contact strength between 85 and 120 pounds. Claim 96 is supported at page 1, line 9, page 3, lines 20 and 27-30, and Figure 1A.

The 35 USC 112 Rejections

Claims 44-47, 49, 50, 55, 57-59 and 72 were rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The rejection is believed obviated by the amendment of claims 44-47, 49, 50, 55, 57-59 and 72. This Amendment is not being made for purposes of patentability since the nature of testing to ascertain at what distance the magnet and attracted material begin to move toward each other is inexact and will in any event be "about" whatever distance is specified. Thus, removal of the term "about" makes no difference to how the claims are interpreted. Applicants respectfully request reconsideration and withdrawal of the rejections of claims 44-47, 49, 50, 55, 57-59 and 72.

DRAFT

The 35 USC 103 Rejections

Vigne

Claims 43-60, 71-73, 77 and 78 were rejected under 35 USC 103(a) as being unpatentable over Vigne (U.S. Patent 5,727,717) alone. The Office Action states:

> Note the magnetic assembly 22 (Fig. 5) and the attracted material 14. The magnetic assembly is considered to comprise a cup serving as a "pole piece" since any magnet would inherently have a "pole".
>
> Claims 43-60 and 78 distinguish over Vigne in requiring the specific distances recited therein at which the magnetic assembly begins to seek home from the form, in requiring specific gausses of the depth-of-pull of the magnetic assembly, and in requiring a specific on-contact strength of the magnetic assembly.
>
> These specific distances at which the magnetic assembly begins to seek home from the form, specific gausses of the depth-of-pull of the magnetic assembly, and specific on-contact strength of the magnetic assembly merely represent obvious choices in engineering design to one of ordinary skill in the art at the time the invention was made for optimum connector performance and for optimum user convenience of the members of the form.
>
> It would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized the specific distances, gausses and on-contact strengths noted above in the form of Vigne for the reasons noted.

Applicants respectfully request clarification of the reasons for rejection of claims 71-73 and 77 over Vigne. In the absence of reference to the relevant teachings of the prior art relied upon, Applicants assume claims 71-73 and 77 to be allowable over Vigne.

The present invention provides a manikin with magnetically attachable parts. The manikin may be life-size. The magnetic assemblies of claim 43 of the present application comprise a cup serving as a pole piece. As further specified in claim 43, the magnetic assembly is positioned on said manikin or said removable piece. In other words, all the elements of the magnetic assembly are positioned on either the manikin or the removable piece. The attracted material is positioned on the other of said manikin or said removable piece.

DRAFT

As known in the art, a "pole piece" may be defined as "a piece of a **ferromagnetic** material at the end of an electromagnet or permanent magnet, whose shape controls the magnetic flux distribution" [emphasis added] (Academic Press Dictionary of Science and Technology, ed. Christopher Morris, Academic Press, San Diego, 1992, p. 1686) [copy enclosed as Exhibit A]. Figure 6B of the present specification illustrates the lines of magnetic force for magnetic material inside a cup-shaped pole piece.

A "cup" may be defined as "any hollow cylindrical component that is closed at one end" (Academic Press Dictionary of Science and Technology, ed. Christopher Morris, Academic Press, San Diego, 1992, p. 564) [copy enclosed as Exhibit B]. However, the specification as filed further states that in the present invention the cup need not be circular (cylindrical), it can also be square rectangular, oval, polygonal or other shapes (page 5, lines 13-14). A magnetic material inside the cup provides the magnetic force (page 5, line 14).

Design of a manikin with magnetically attachable parts requires careful selection of the magnetic system which attaches parts to the manikin. If the on-contact strength of the magnetic assembly is too small, the part can be too easily dislodged. If the on-contact strength of the magnetic assembly is too large, the part can be too difficult to remove from the form. Furthermore, although it does not appear to have been generally recognized, the depth of pull of the magnetic assembly (force exerted at a given distance from the magnetic assembly, page 3, line 18) also affects the performance of the manikin. If the depth of pull is too small, the part will not be pulled into place until it is almost in touching alignment. This will make it difficult to attach the manikin limb under clothing. If the depth of pull is too great, the part may engage too quickly and strongly, perhaps pinching the operator's fingers.

Vigne discloses magnetically coupled joints for manikins and forms. Vigne discloses a magnetic assembly having a ferrite block magnet 22 sandwiched between rectangular steel plate pole pieces 24 and 26 (col. 4, lines 20-27, Figures 5 and 9). Figure

DRAFT

5 shows an element **50** which appears to be cup-shaped, but which is not made of ferromagnetic material and therefore cannot serve as a pole piece. (See Exhibit A which defines "pole piece" as being made of ferromagnetic material.) The Vigne patent at col. 6, line 4, defines element **50** as a "peripheral portion." The only ferromagnetic materials in Figure 5 are the magnet **22** and the pole pieces **24** and **26**. Element **50** is not made of a ferromagnetic material. Column 4, lines 40-67 and col. 5, lines 1-5, describe the magnetic assembly **20** (which comprises the magnet **22** and the pole pieces **24** and **26** [see Figure 10]), and how it is molded in place into a molding material, e.g., glass-reinforced plastic. This shows that element **50** is not made of metal but of the molded material of the manikin. Therefore element **50** cannot be a pole piece. Therefore, Applicants respectfully disagree that Vigne teaches a ferromagnetic cup serving as a pole piece. Furthermore, the Vigne reference does not appear to suggest use of a cup pole piece. Therefore, no *prima facie* case of obviousness has been made out.

Vigne also states that with his joints it may be necessary to get the male member partly into the socket or at least generally aligned therewith (Col. 1, lines 60-66). In contrast, it is not necessary in the present invention to generally align the parts of the magnetic assembly or to partly assemble them.

Vigne does not appear to teach or suggest the need for modification of the magnet design disclosed in his patent. As evidenced by Table 2, page 15 of the present application, the particular magnet design described by Vigne has a depth of pull of 110 gauss at a distance of 1 inch, versus 240 gauss for the neodymium cup assembly of the present invention. Since the Vigne patent does not provide motivation for making a magnetic assembly with a greater depth of pull than that achievable by the magnet disclosed in the patent, no *prima facie* case of obviousness has been made out.

In addition, Exhibit A submitted with the Amendment filed January 22, 2003 presents evidence of the commercial success of the present invention, providing secondary indicia of non-obviousness which would overcome any obviousness rejections

which could be made (although Applicants submit that no proper obviousness rejection can, in fact, be made out).

In view of all the foregoing, Applicants respectfully request reconsideration and withdrawal of the rejection of independent claim 43. Since claims 43-60, 71-73, 77 and 78 depend from claim 43, Applicants respectfully request reconsideration and withdrawal of the rejections of claims 43-60, 71-73, 77 and 78.

Sato

Claims 43-61, 71-73, 77 and 78 are rejected under 35 U.S.C. §103(a) as being unpatentable over Sato (U.S. Patent 4,038,775) alone. The Office Action states:

> Note the magnetic assembly 4 and the attracted material 13. The magnetic assembly is considered to comprise a cup serving as a "pole piece" since any magnet would inherently have a "pole".
>
> Claims 43-60 and 78 distinguish over Sato in requiring the specific distances recited therein at which the magnetic assembly begins to seek home from the form, in requiring specific gausses of the depth-of-pull of the magnetic assembly, and in requiring a specific on-contact strength of the assembly...It would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized the specific distances, gausses and on-contact strengths noted above in the form of Sato for the reasons noted.

Applicants respectfully request clarification of the reasons for rejection of claims 61, 71-73, and 77 over Sato. In the absence of reference to the relevant teachings of the prior art relied upon, Applicants assume claims 61, 71-73, and 77 to be allowable over Sato.

Sato relates to a doll with detachable appendages. As shown in Figures 1-6 and described at column 2, lines 52-56 of Sato, the doll body (1) has a permanent magnet (4) sandwiched between a pair of flat metal pole pieces (5,6). Therefore, Applicants respectfully disagree that Sato teaches a ferromagnetic cup serving as a pole piece. Furthermore, the Sato reference does not appear to suggest use of a cup pole piece. In

addition, it is not evident that a cup pole piece could be readily substituted for Sato's flat metal pole pieces. Therefore, no *prima facie* case of obviousness has been made out.

Since Sato relates to a doll rather than to a manikin, Sato does not appear to teach or suggest modifications of his doll joint to make it more suitable for use as a manikin joint. For example, Sato does not appear to suggest eliminating the limitation that the appendage have a spherical joint portion of attracted material. When sized up for a manikin, such a joint would appear to be impractically heavy. In addition, the construction shown in Sato's Figure 1 where the permanent magnet extends over substantially the length of the doll body would also be impractically heavy for a manikin.

In view of all the foregoing, no *prima facie* case of obviousness has been made out and Applicants respectfully request reconsideration and withdrawal of the rejections of claims 43-61, 71-73, 77 and 78.

In addition, Exhibit A submitted with the Amendment filed January 22, 2003 presents evidence of the commercial success of the present invention, providing secondary indicia of non-obviousness which would overcome any obviousness rejections which could be made (although Applicants submit that no proper obviousness rejection can, in fact, be made out).

Teagarden

Claims 43-62, 70-73, 77 and 78 were rejected under 35 U.S.C. §103(a) as being unpatentable over Teagarden (US Patent 3,246,422) alone. The Office Action states:

> Note Figs. 1-6. The magnetic assembly is considered to comprise a cup serving as a "pole piece" since any magnet would inherently have a "pole."
>
> Claims 43-60 and 78 distinguish over Teagarden in requiring the specific distances recited therein at which the magnetic assembly begins to seek home from the form, in requiring specific gausses of the depth-of-pull of the magnetic assembly, and in requiring a specific on-contact strength of

DRAFT

> the assembly. . . . It would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized the specific distances, gausses and on-contact strengths noted above in the form of Teagarden for the reasons noted.

Applicants respectfully request clarification of the reasons for rejection of claims 61-62, 70-73 and 77 over Teagarden. In the absence of reference to the relevant teachings of the prior art relied upon, Applicants assume claims 61-62, 70-73 and 77 to be allowable over Teagarden.

Teagarden relates to dolls having magnetically connected components, for example magnetically connected body portions, arms and legs. In Teagarden's invention, circular component-connecting magnets project from the components, which magnets are adapted to be engaged in socket assemblies being lined with magnetizable material (col. 1, lines 26-30). Teagarden's magnetic assembly consists of a "relatively thick" circular magnet; no pole piece appears to be used (col. 1, line 65, Figure 3). Therefore, Applicants respectfully disagree that Teagarden teaches a ferromagnetic cup serving as a pole piece. Furthermore, the Teagarden reference does not appear to suggest use of pole pieces of any shape. Therefore, no *prima facie* case of obviousness has been made out.

Since Teagarden relates to a doll rather than to a manikin, Teagarden does not appear to teach or suggest modifications of her doll joint to make it more suitable for use as a manikin joint. For example, simple scaling up of Teagarden's magnetic joint design for use in a manikin should result in an impractically heavy magnetic assembly. Teagarden also does not appear to suggest the cup magnetic assembly of claim 61, instead disclosing a magnet which does not appear to have a pole piece.

In view of all the foregoing, no *prima facie* case of obviousness has been made out and Applicants respectfully request reconsideration and withdrawal of the rejection of claims 43-62, 70-73, 77 and 78.

In addition, Exhibit A submitted with the Amendment filed January 22, 2003 presents evidence of the commercial success of the present invention, providing

DRAFT

secondary indicia of non-obviousness which would overcome any obviousness rejections which could be made (although Applicants submit that no proper obviousness rejection can, in fact, be made out).

Osmond

Claims 43-62, 70-73, 77 and 78 were rejected under 35 U.S.C. §103(a) as being unpatentable over Osmond (US Patent 3,168,227) alone. The Office Action states:

> Note Figs. 1-5. The magnetic assembly in considered to comprise a cup serving as a "pole piece' since any magnet would inherently have a "pole".
>
> Claims 43-60 and 78 distinguish over Osmond in requiring the specific distances recited therein at which the magnetic assembly begins to seek home from the form, in requiring specific gausses of the depth-of-pull of the magnetic assembly, and in requiring a specific on-contact strength of the assembly...It would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized the specific distances, gausses and on-contact strengths noted above in the form of Osmond for the reasons noted.

Applicants respectfully request clarification of the rejections of claims 61-62, 70-73 and 77 over Osmond. In the absence of reference to the relevant teachings of the prior art relied upon, Applicants assume claims 61-62, 70-73 and 77 to be allowable over Osmond.

Osmond relates to a doll manikin with detachable components. As described, the doll manikin has attachable and detachable arms and head. As shown in the Figures, the magnets appear to be disk-like and do not appear to be used with one or more pole pieces. Furthermore, two permanent magnets are used (col. 2, lines 36-51) rather than one magnet and an attracted material. Therefore, Applicants respectfully disagree that Osmond teaches a ferromagnetic cup serving as a pole piece. Furthermore, the Osmond reference does not appear to suggest use of any shape pole pieces. Therefore, no *prima facie* case of obviousness has been made out.

DRAFT

Since Osmond relates to a doll rather than to a manikin, Osmond does not appear to teach or suggest modifications of her doll joint to make it more suitable for use as a manikin joint. For example, simple scaling up of Osmond's magnetic joint design for use in a manikin should result in an impractically heavy magnetic system.

In view of all the foregoing, no *prima facie* case of obviousness has been made out and Applicants respectfully request reconsideration and withdrawal of the rejection of claims 43-62, 70-73, 77 and 78.

In addition, Exhibit A submitted with the Amendment filed January 22, 2003 presents evidence of the commercial success of the present invention, providing secondary indicia of non-obviousness which would overcome any obviousness rejections which could be made (although Applicants submit that no proper obviousness rejection can, in fact, be made out).

Hunter

Claims 43-62, 70-73, 77 and 78 were rejected under 35 U.S.C. §103(a) as being unpatentable over Hunter (U.S. Patent 3,140,712) alone. The Office Action states:

> Note Figs. 1-3. The magnetic assembly is considered to comprise a cup serving as a "pole piece" since any magnet would inherently have a "pole".
>
> Claims 43-60 and 78 distinguish over Hunter in requiring the specific distances recited therein at which the magnetic assembly begins to seek home from the form, in requiring specific gausses of the depth-of-pull of the magnetic assembly, and in requiring a specific on-contact strength of the assembly. . . . It would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized the specific distances, gausses and on-contact strengths noted above in the form of Hunter for the reasons noted.

Applicants respectfully request clarification of the rejections of claims 61-62, 70-73 and 77 over Hunter. In the absence of reference to the relevant teachings of the prior

DRAFT

art relied upon, Applicants assume claims 61-62, 70-73 and 77to be allowable over Hunter.

Hunter relates to articulated prosthetic joints which permit bones to be both pivotal and slidable with respect to one another. The joint consists of a magnet means that is associated with the articulated end of the first bone member and magnetizable means associated with the articulated end of the second bone member (col. 1, lines 67-70). The magnet means is described as a permanent magnet (e.g. a horseshoe magnet) or electromagnet (col. 3, lines 1-5). No pole piece appears to be used with Hunter's magnet. Hunter's magnetizable means is described as a cup or another magnet (col. 3, lines 10-14). Therefore, Applicants respectfully disagree that Hunter teaches a ferromagnetic cup serving as a pole piece. Furthermore, the Hunter reference does not appear to suggest use of any shape pole pieces. Therefore, no *prima facie* case of obviousness has been made out.

Since Hunter relates to a prosthetic joint rather than to a manikin joint, Hunter does not appear to teach or suggest modifications of his prosthetic joint to make it more suitable for use as a manikin joint. For example, it is unlikely that Hunter's prosthetic joint is designed to be as easily separable as a manikin joint would require.

In view of all the foregoing, no *prima facie* case of obviousness has been made out and Applicants respectfully request reconsideration and withdrawal of the rejection of claims 43-62, 70-73, 77 and 78.

In addition, Exhibit A submitted with the Amendment filed January 22, 2003 presents evidence of the commercial success of the present invention, providing secondary indicia of non-obviousness which would overcome any obviousness rejections which could be made (although Applicants submit that no proper obviousness rejection can, in fact, be made out).

DRAFT

The Allowable Claims

The Office Action dated May 13, 2003 stated that claims 65-67 and 94 were objected to as being depended upon a rejected base claim, but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. Claims 65-67 and 94 depend from claim 43. As discussed above, Applicants believe claim 43 to be allowable over the cited art of record. Therefore, claims 65-67 and 94 have not been rewritten in independent form.

The New Claim

Claim 96 recites a manikin having a magnetic assembly sized for a life-sized manikin joint, having a depth of pull of at least 200 gauss at a distance of one inch, and having an on-contact strength between 85 pounds and 120 pounds.

Claim 96 is believed to be allowable over the art of record because it does not appear that the prior art of record recites these particular limitations regarding the magnetic assembly. In particular, the sandwich-type magnetic assembly disclosed by Vigne at col. 7, lines 38-39 (magnetic dimensions 100 mm x 25 mm x 25 mm) only has a depth of pull of 110 gauss at one inch (see Table 2 of the present specification). Increasing the size of the magnet to increase the depth of pull could unacceptably increase the size of the magnetic assembly.

The Claims Withdrawn from Consideration

Claims 68, 69, 74-76 and 95 have been withdrawn from consideration as being drawn to non-elected inventions, there being no allowable generic linking claim. As discussed above, Applicants submit that claims 43-62, 65-67, 70-73, 77, 78 and 94 are allowable, thereby providing allowable generic claims. Therefore, Applicants respectfully request reinstatement of the claims withdrawn from consideration.

CONCLUSION

This application being in condition for allowance, passage to issuance is respectfully requested.

It is believed that no fee is due with this submission. If this is incorrect, please charge any deficiency or fee for extension of time required to Deposit Account 07-1969.

Respectfully submitted,

Tamala R. Jonas
Reg. No. 47,688

**GREENLEE, WINNER and SULLIVAN, P.C.**
5370 Manhattan Circle, Suite 201
Boulder, CO 80303
Phone: 303-499-8080
Fax: 303-499-8089
email: winner@greenwin.com
ks: 06/18/2003
Docket 11-00

DRAFT